cell hybridization. He also describes the biochemical markers which are available for use in somatic systems of genetic analysis. Additional genes have been mapped since the review was written, putting it slightly out of date, but this doesn't detract from the impact of the paper. The short papers in this section deal with such topics as mapping the X chromosome by means of translocations, induced chromosome elimination, and the fate of mitochondrial DNA in human-rodent hybrids. The discussion following these short papers is especially useful since it helps to clarify the reasons for contradictory results from different laboratories. The discussion also provides new and useful information, such as Coon's observation that hybrids between human cells and primary rodent cells tend to lose rodent chromosomes.

Koprowski's review of viruses in fused cells is encyclopedic and covers such areas as virus rescue in hybrids, susceptibility of hybrid cells to infection with viruses, and the expression of viral antigens in cell hybrids. In addition, he reviews the synthesis of interferon, complement, and immunoglobulin in hybrid cells. The discussion of Wiener's short paper on the in vivo fusion of tumor cells with host cells clearly points out the difficulty of rigorously proving this phenomenon.

In the third section, Davidson's review shows that while the technique of cell hybridization has been used extensively in the study of gene regulation, leading to some basic generalizations regarding the expression of differentiated functions in cell hybrids, these experiments have failed to shed much light on the molecular mechanisms of gene regulation in higher cells. Darlington's report of the production of human albumin in mouse hepatoma–human leukocyte hybrids, along with the results of Weiss showing the reexpression of liver-specific enzymes in hepatoma cell hybrids, are quite intriguing observations. Yet the experience of recent years makes me somewhat skeptical that such systems will be as useful for the study of gene regulation as originally hoped.

In the final section, Ringertz's review on gene expression in heterokaryons deals with the advantages of heterokaryons over synkaryons for certain types of experiments and considers such areas as premature chromatin condensation and complementation. In addition, the review covers the new techniques for enucleating large numbers of somatic cells and the possibilities of fusing nuclei or intact cells with these enucleated cytoplasms. While the studies with reconstituted cells are in their infancy, it is clear that this technique holds much promise for the study of nuclear-cytoplasmic interactions.

While some of the short papers could probably have been omitted, the quality of the review articles makes this monograph a useful acquisition for students and established investigators alike.

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Serotonin in Down's Syndrome. Edited by M. COLEMAN. New York: American Elsevier Publishing Co., 1973. Pp. 224. $15.50.

The clear-cut finding of low platelet or whole blood values for serotonin in patients with Down's syndrome has generated speculation about brain levels of serotonin (5-hydroxytryptamine, 5HT) and efforts to increase the blood and presumably the brain levels toward the normal range.

Compared with 174 age-matched controls, 174 children with trisomy 21 had lower neonatal values and achieved a plateau at 40% of normal blood levels of serotonin, measured as 5-hydroxyindoles. Twelve children with mosaic and 12 with translocation types of Down's syndrome had similarly low values. Treatment trials were designed with 5-hydroxytryptophan (5HTP), since all of 5HTP is converted to 5HT, whereas only 1% of tryptophan goes to 5HT. Initially, 14 trisomic patients treated with 5HTP from infancy appeared to benefit, with increased muscle tone, earlier walking, better balance, and increased activity.

The key work described in this monograph is a double-blind 5HTP/placebo study. Nine patients received placebo and 10 received L- or D,L-5HTP from 1 day of age until 3 years. Given these small numbers, it would have been desirable to show the standard errors of mean values plotted as function of age. Mental function on Bayley developmental scales was not enhanced. Behavior patterns were statistically indistinguishable, with a tendency toward lower scores among 5HTP-treated children. The 5HTP treatment profoundly affected the electroencephalogram, causing paroxysmal abnormalities and one case of clinical seizures, altered evoked potentials, and reduced rapid eye movement sleep. Bayley psychomotor scores were lower; neurological tonus scores were enhanced neonatally, thereafter lower up to 3 years; amelioration of buccal-lingual abnormalities was equivalent; and early walking was the same. Environmental influences, particularly the attitude of the mother, seemed quite important. Finally, serious side effects of 5HTP were noted: 14% of all patients treated developed infantile spasm syndrome; diarrhea, hyperactivity, opisthotonus, hyperacousis, and hypertension occurred acutely; and too rapid reduction of dose regularly produced ataxia.

All of this work leads to the conclusion that administration of 5HTP to patients with Down's syndrome is *no longer recommended.* It is uncommon to find that the proponent of a new, seemingly dramatically effective therapy should debunk the regimen with such a double-blind assessment. The attention given these children and their parents in the special outpatient setting surely contributed to the good "placebo" effects.

The book is well organized, with a concise summary, a good discussion of serotonin metabolism in retardation syndromes other than Down's, and comprehensive appendixes giving laboratory methods, primary clinical data, and a review of factors affecting serotonin metabolism or measurement in children.

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Erb- und Umweltfaktoren bei Neurosen: Tiefenpsychologische Untersuchungen an 50 Zwillingspaaren. By H. SCHEPANK with the collaboration of P. E. BECKER, A. HEIGL-EVERS, C. O. KÖHLER, HELGA SCHEPANK, and G. WAGNER. Monographien aus dem Gesamtgebiete der Psychiatrie, Band 11. Berlin: Springer-Verlag, 1974. Pp. vi + 227. $34.30.

Schepank and his team have carried out a systematic study of twins who attended the West Berlin Institut für psychogene Erkrankungen during a period of 20 years. Unlike many psychoanalytic clinics, its clientele was representative of the general population. During the earlier part of the period there was some underreporting of twins,